Bellwork: 11/21/11

① Write equation given $(2,3)$ & $(-4,3)$

$$\frac{y_2-y_1}{x_2-x_1} = \frac{3-3}{-4-2} = \frac{0}{-6} = 0$$

$$y-3=0(x-2)$$

$$y-3=0$$

$$y=3$$

② $f(x)=2x-5$

$g(x)=x^2+6$

Find $g(f(x))$

$g(2x-5)$

$(2x-5)^2+6$

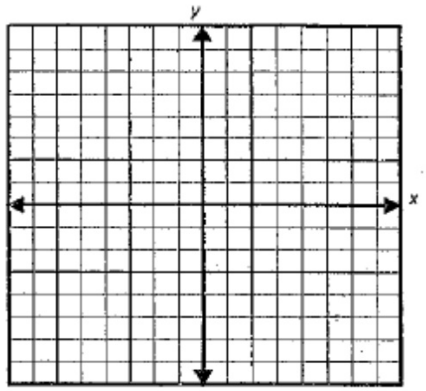
$(2x-5)(2x-5)+6$

$4x^2-20x+25+6$

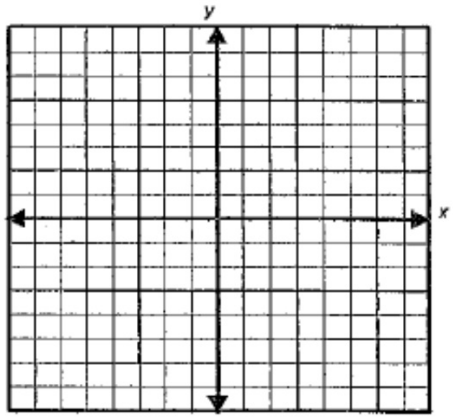
$4x^2-20x+31$

Graph the following functions

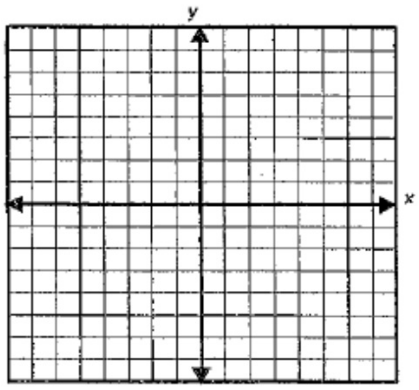
1. $f(x)=\begin{cases} 2x+1 & \text{if } x<-2 \\ -\frac{1}{2}x-4 & \text{if } -2\le x\le 1 \\ x+6 & \text{if } x>1 \end{cases}$



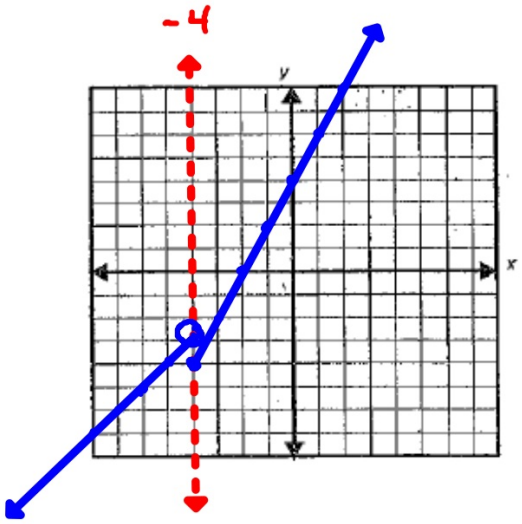
2. $f(x) = \begin{cases} \frac{3}{5}x + 1 & \text{if } x \leq -5 \\ 4 & \text{if } -5 < x \leq 2 \\ 2x - 2 & \text{if } 2 < x \leq 4 \\ 6 & \text{if } x > 4 \end{cases}$



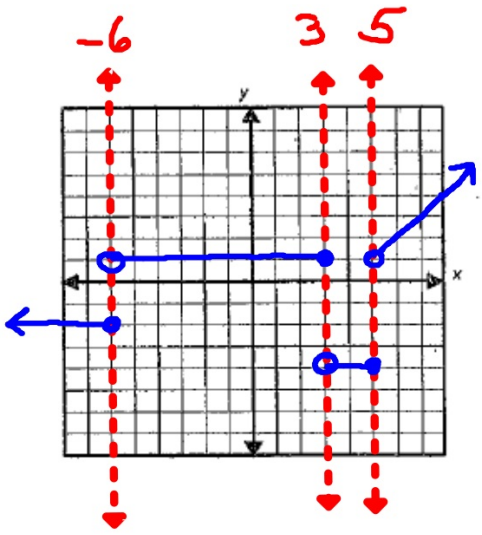
3. $f(x) = \begin{cases} -3x + 5 & \text{if } x \leq -1 \\ 5 & \text{if } -1 < x < 4 \\ \frac{1}{2}x - 3 & \text{if } 4 \leq x \leq 6 \end{cases}$



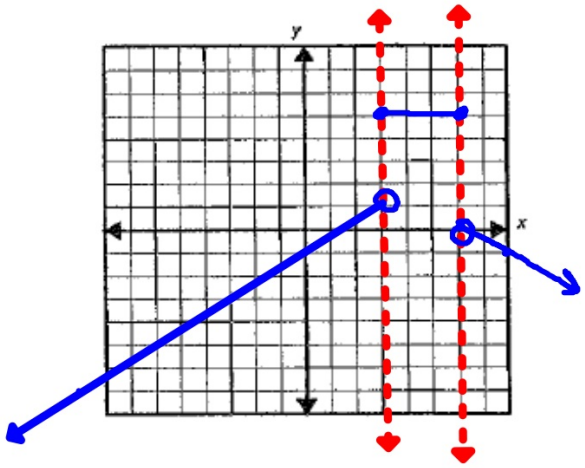
4. $f(x) = \begin{cases} x+1 & \text{if } x < -4 \\ 2x+4 & \text{if } x \geq -4 \end{cases}$



5. $f(x) = \begin{cases} -2 & \text{if } x \le -6 \\ 1 & \text{if } -6 < x \le 3 \\ -4 & \text{if } 3 < x \le 5 \\ x - 4 & \text{if } x > 5 \end{cases}$

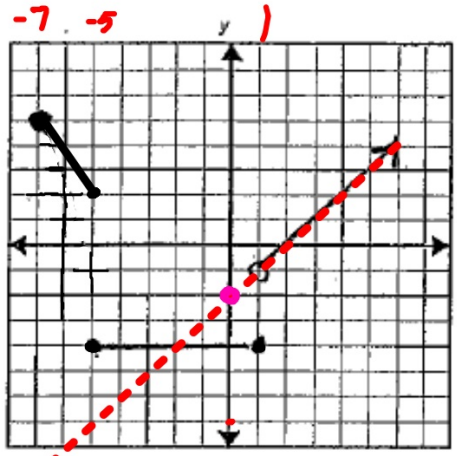


6. $f(x) = \begin{cases} \frac{2}{3}x - 1 & \text{if } x < 3 \\ 5 & \text{if } 3 \le x \le 6 \\ -\frac{1}{2}x + 3 & \text{if } x > 6 \end{cases}$



Write the equation of the following piecewise functions.

7.



$f(x)$

$-\frac{3}{2}x-6$ if $-7 \leq x < -5$

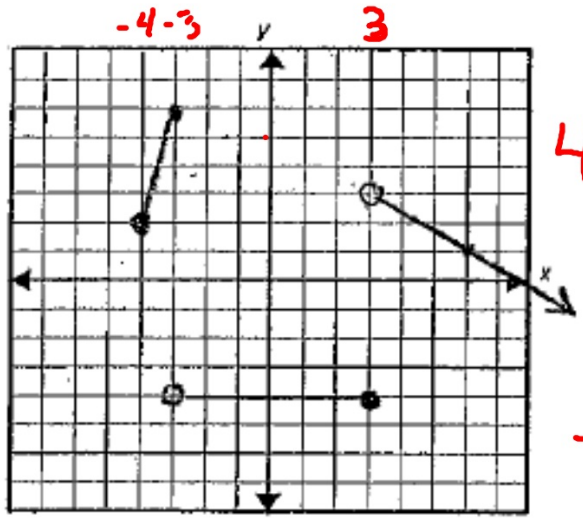
-4 if $-5 \leq x \leq 1$

$x-2$ if $x > 1$

$y = mx+b$

$\frac{-1}{-1}$

8.

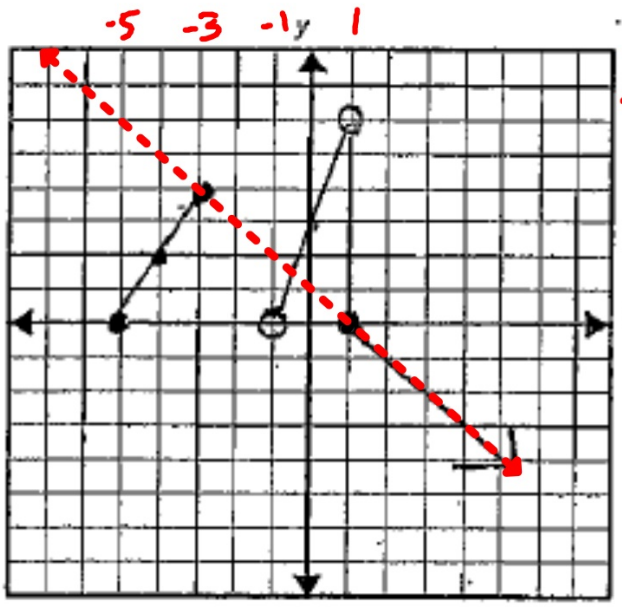


$4x+18$ if $-4 \leq x \leq -3$

4 if $-3 < x \leq 3$

$-\frac{2}{3}x+5$ if $x > 3$

9.

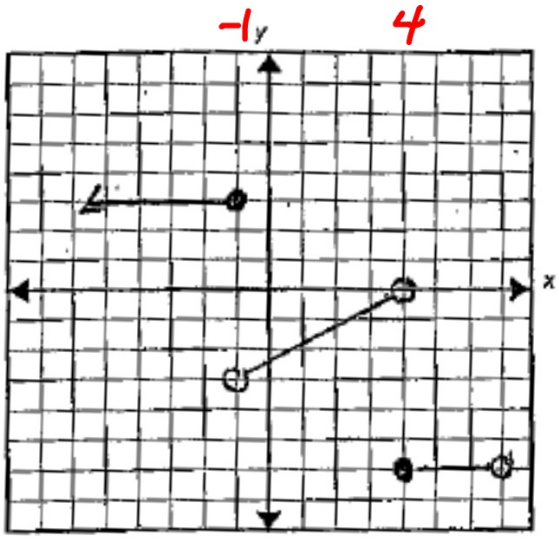


$2x+10$ if $-5 \leq x \leq -3$

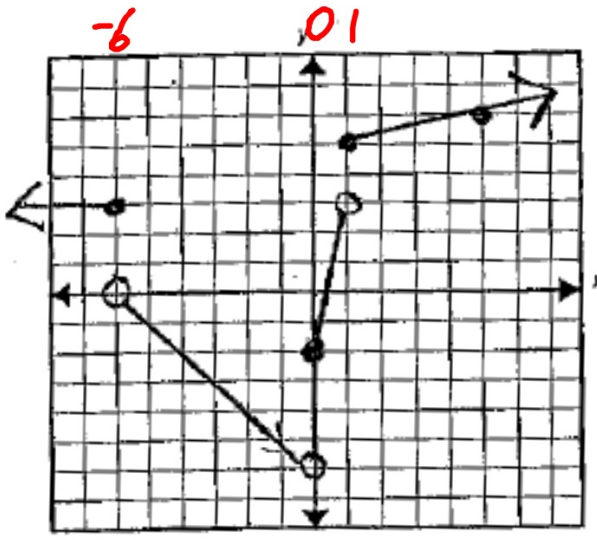
$3x+3$ if $-1 < x < 1$

$-x+1$ if $x > 1$

10.



11.



3 if $x \leq -6$

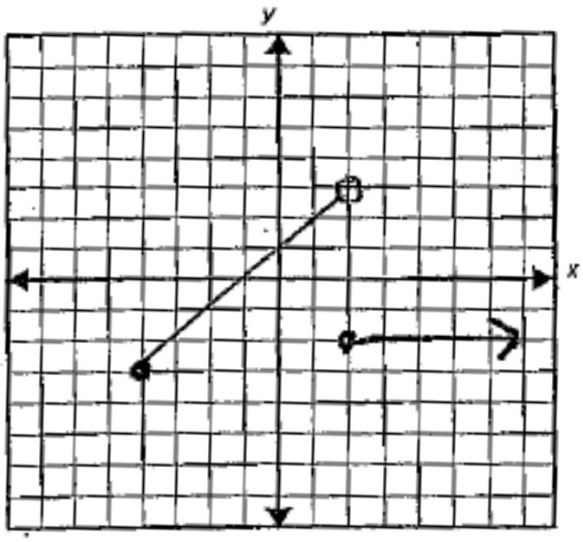
$-x-6$ if $-6 < x < 0$

$5x-2$ if $0 \leq x < 1$

$\frac{1}{4}x+4$ if $x \geq 1$

$\frac{-2}{2} = -1$

12.



Evaluate the following:

$$f(x)=\begin{cases}2x-1 & \text{if } x<2\\ -5 & \text{if } 2\le x\le 5\\ -\frac{3}{2}x-3 & \text{if } x>5\end{cases}$$

13. f(-2)

$2(-2)-1$

-5

14. f(0)

$2(0)-1$

-1

15. f(10)

$-\frac{3}{2}(10)-3$

$-15-3$

-18

16. f(4)

-5

$$f(x)=\begin{cases}\frac{3}{2}x-10 & \text{if } x\le -5\\ -\frac{4}{3} & \text{if } -5<x\le 2\\ 2x+3 & \text{if } 2<x\le 4\end{cases}$$

17. f(3)

$2(3)+3$

9

18. f(6)

NO SOLUTION

19. f(-6)

-19

20. f(1)

$-\frac{4}{3}$